



U.S. Department
of Transportation

**Federal Aviation
Administration**

Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

APR 13 2010

The Honorable David R. Obey
Chairman, Committee on Appropriations
House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

Conference Report 111-366 (Public Law 111-117), accompanying the Fiscal Year (FY) 2010 Omnibus Appropriations Act, asked the Federal Aviation Administration to provide a report to the House and Senate Committees on Appropriations, which describes every procedure that will be developed with FY 2010 funds, including quantifiable data comparing flight time; flight distance; and estimated fuel, emissions, and environmental benefits compared to existing procedures. The report includes information on which office or region requested the procedure and the anticipated development time.

The FAA will be developing 498 procedures with funding received for FY 2010. The FAA, in close collaboration with the aviation industry through RTCA Task Force 5 commitments, is refining a strategy for Performance-based Navigation to evolve the National Airspace System toward Area Navigation and Required Navigation Performance procedures in all phases of flight with a goal of providing safety, environmental, and operational benefits.

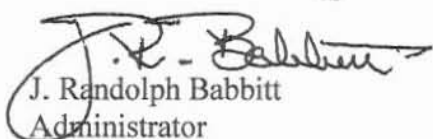
Currently, benefits analysis is limited to select individual procedures such as Optimized Profile Descents (OPD) or to bundles of procedures as part of a larger pool of benefits associated with an airspace redesign project. However, FAA is committed to improvements in measuring and demonstrating benefits. In alignment with RTCA Task Force 5 recommendations, we will focus on metroplex areas and will conduct modeling and site analysis in these areas. We will also begin in FY 2010 to establish baselines and gather data to perform the necessary pre- and postimplementation benefits analysis for all performance-based navigation routes and procedures.

FAA and industry have worked to establish and refine development and production processes to provide the greatest value to the user community. In January 2010, the Performance-based Operations Aviation Rulemaking Committee (PARC) sent the FAA recommendations intended to make the development process more efficient and beneficial. In addition, FAA has begun a "lean" process analysis project to improve and streamline processes used to develop and implement navigation procedures. The PARC recommendations and the results of the "lean"

review will be combined with the RTCA industry recommendations in Task Force 5 to provide a clear strategy for performance-based navigation development and deployment with the robust processes necessary to support it in FY 2010 and beyond.

Identical letters have been sent to Chairmen Obey and Inouye and Congressman Lewis.

Sincerely,



J. Randolph Babbitt
Administrator

Enclosure



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APR 13 2010

The Honorable Daniel K. Inouye
Chairman, Committee on Appropriations
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

Conference Report 111-366 (Public Law 111-117), accompanying the Fiscal Year (FY) 2010 Omnibus Appropriations Act, asked the Federal Aviation Administration to provide a report to the House and Senate Committees on Appropriations, which describes every procedure that will be developed with FY 2010 funds, including quantifiable data comparing flight time; flight distance; and estimated fuel, emissions, and environmental benefits compared to existing procedures. The report includes information on which office or region requested the procedure and the anticipated development time.

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Identical letters have been sent to Chairmen Obey and Inouye and Congressman Lewis.

Sincerely,



J. Randolph Babbitt
Administrator

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APR 13 2010

The Honorable Thad Cochran
Committee on Appropriations
United States Senate
Washington, DC 20510

Dear Senator Cochran:

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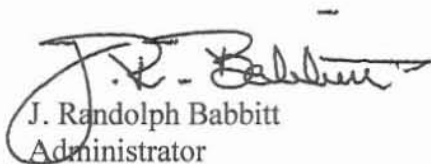
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Identical letters have been sent to Chairman Inouye, Senator Cochran, and Congressman Lewis.

Sincerely,



J. Randolph Babbitt
Administrator

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APR 13 2010

The Honorable Jerry Lewis
Committee on Appropriations
House of Representatives
Washington, DC 20515

Dear Congressman Lewis:

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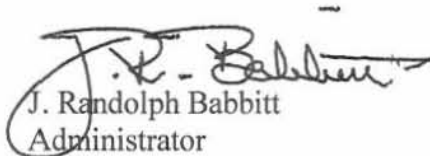
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Sincerely,



J. Randolph Babbitt
Administrator

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**THE FEDERAL AVIATION ADMINISTRATION (FAA)
REPORT TO THE
HOUSE AND SENATE COMMITTEES ON APPROPRIATIONS**

**AREA NAVIGATION (RNAV) AND REQUIRED NAVIGATION PERFORMANCE
(RNP)**

February 15, 2010

This report is in response to the Congressional Appropriations requirement to report on FAA's Performance-based Navigation (PBN) implementation plan. It addresses Area Navigation (RNAV) and Required Navigation Performance (RNP), which together form the FAA's PBN implementation strategy and constitute one of the foundational elements of the Next Generation Air Transportation System (NextGen).

Over the past few years, PBN routes and procedures have been developed and implemented within some of the most complex airspaces in the Nation. Many have resulted in significant benefits such as increased capacity, reductions in delay, and reduction of carbon emissions. Examples include:

- Phoenix (PHX) RNAV Arrivals

Since the implementation of two RNAV Standard Terminal Arrivals (STAR) at PHX in October 2006, significant benefits have been noted: 38 percent reduction in the time aircraft remain in level flight, user benefit fuel savings estimated at \$2 million annually, and reductions in carbon dioxide emissions estimated at 2,500 metric tons annually.

- Atlanta (ATL) RNAV Departures

Atlanta RNAV Standard Instrument Departures (SID) have achieved fuel savings due to reduced departure delays of more than 2.5 minutes a flight. Annual fuel savings are estimated at \$34 million, with cumulative savings of \$105 million from 2006 through 2008.

- Dallas-Fort Worth (DFW) RNAV Departures

DFW departures on initially diverging routes (fanned departures) have resulted in improved separation efficiency and increased capacity by 11 to 20 operations an hour, with cumulative fuel and delay savings estimated at \$30 million from 2005 through 2008.

- San Diego (SAN) RNAV Departures

An RNAV SID at San Diego is projected to yield fuel and emissions savings of 4.5 gallons and 95 pounds of carbon dioxide per flight, which equates to reduction of nearly 1,800 metric tons of emissions annually.

For many of the airports on the Fiscal Year (FY) 2010 and FY 2011 plan, this report does not include a comparison against existing procedures, as requested, as valid comparisons are not

feasible until specific FAA and industry working teams can establish and reach consensus on the beneficial lateral and vertical designs. Additionally, reporting benefits metrics on each new procedure requires large amounts of data analysis before, during, and particularly after implementation to draw the correct comparisons for benefit measurement. In alignment with RTCA Task Force 5 recommendations, the FAA will focus on metroplex implementation, and will be conducting modeling and site analysis at these areas and select airports across the National Airspace System (NAS). This ensures a more efficient use of funding on analysis work. The FAA is developing tools that can support larger scale and ongoing procedure design and implementations.

In FY 2010, the FAA will be developing 498 PBN procedures with funding received for encompassing:

- 217 RNAV Standard Instrument Departures (SID)
- 144 RNAV Standard Terminal Arrivals (STAR)
- 128 RNP Approaches (Authorization Required (AR))
- 6 RNAV Terminal Transition Routes (T-route)
- 3 RNAV En Route Airspace Routes (Q-route)

The FAA, in close collaboration with the aviation industry, has defined a strategy for PBN to evolve the NAS toward RNAV and RNP procedures in all phases of flight: en route, arrival and departure, and approach operations, with a goal of providing valid safety and operational benefits to operators. In accomplishing this, we recognize, from an aircrew and air traffic controller perspective, these advanced technologies and procedures are a significant change from current procedures, where vectoring of aircraft via voice communications has been the institutional practice for many decades. There are important factors toward consider as we move to these advanced technologies, including:

- Moving toward PBN operations means significantly reducing vectoring and voice instructions. This is a fundamental change in practice, procedures, and training programs for controllers and pilots, and one that must evolve over time.
- To introduce and facilitate the national familiarization of PBN procedures to pilots and controllers, the FAA, through the RNAV/RNP Program Office, has implemented over 1,140 PBN procedures at many terminal and en route air traffic control (ATC) facilities across the NAS. Many of these initial procedures were implemented in response to industry requests. Procedural development has also been tied to numerical production goals for several years.
- In some but not all cases, there may not have been significant quantifiable benefits because procedures overlaid the historical lateral and vertical vector patterns used by air traffic controllers. However, these procedures have provided an important foundation

in achieving familiarization and confidence of controllers. This confidence produced widespread acceptance and has already resulted in rapid enhancements in procedural development in places like Atlanta and Dallas-Fort Worth.

- Even procedures that overlay an existing track across the ground can have a change in vertical components that produces benefits to both ATC and the operator. The degree of benefit provided by such a procedure depends on a number of key factors including: environmental constraints, mixed equipage operations, level of procedure complexity, and how rapidly the new operational philosophy is accepted by the workforce.
- FAA plans recognize the need to quickly evolve procedural design and deployment to produce greater benefits. In FY 2010, FAA will build on the successful introduction of PBN operations in the NAS through a continuous improvement process to optimize PBN procedures. Close collaboration between FAA and industry, through forums such as RTCA and the Performance-based Operations Aviation Rulemaking Committee (PARC), as well as close coordination between the FAA's air traffic and flight standards organizations will ensure success.

The optimization process focuses on opportunities to improve procedure design, address issues, and achieve larger benefits in the near- and mid-term. This occurs through improved designs and applications of PBN for increased airport throughput and greater aircraft fuel efficiency using optimized arrival and departure vertical profiles. For the arrival phase of flight, these types of procedures are characterized as Optimized Profile Descents (OPD). Recent modeling and analysis have shown potential significant benefits in terms of reduced fuel consumption and reduced emissions.

The FAA and industry recognize that in addition to these near-term opportunities, even greater benefits can be realized by initiating a more comprehensive airspace and procedures redesign and by moving away from designs that conform to historical vector and flight profile patterns. Each one of us recognizes that these types of implementations will have longer lead times due to variables such as environmental studies, rulemaking requirements, and airspace modeling and changes. The FAA is advancing PBN implementation through a more comprehensive integration of airspace and procedures plan, which includes advancements and commitments toward recommendations submitted by RTCA Task Force 5. Potential benefits of this integration concept are the use of procedures to decouple flight paths in complex and adjacent airport airspace, improved access to runways, and increased terminal and en route ingress and egress resulting in improved terminal and en route airspace efficiencies.

Of particular note, aircraft equipage rates for PBN operations have increased over the past few years, enabling nationwide applications of these procedures for a range of aviation operators. A recent FAA analysis of the Part 121 operators shows that overall RNAV equipage exceeds 90 percent, while RNP equipage varies depending on the level or application. About 40 percent of the United States fleet is RNP capable. As equipage rates increase, corresponding benefits will accrue to the system.

In response to the question from Congress regarding comparative benefits reporting, the FAA performed a limited initial benefits comparison analysis on arrivals at selected airports throughout the NAS. This analysis targeted airports that have over 40 instrument flight rules (IFR) arrivals a day, are serviced by operators with at least 50 percent RNAV equipage, and have at least 20 percent Part 121 traffic or greater than 35 percent jet traffic. This information is listed in the tables that follow. The other airports identified in the tables will require further modeling and analysis to show similar levels of detail.

The FAA plans to advance PBN implementation are shown in the three sections and tables below. The tables list the procedures that will be developed with FY 2010 funds. It is important to note that the plan includes procedures that were designed with FY 2009 funds but will be finalized and implemented in FY 2010 and procedures that will be finalized and implemented in 2011. These procedures will have initial studies, planning, and design work funded by 2010 funds. The “Publication Chart Cycle” column indicates the time by fiscal year when the procedure will be ready for use. This date indicates when the navigation chart and the on-board navigation database (used by the aircraft’s flight management computer) will be in place and ready for use. If a TBD is identified in the publication chart cycle column this indicates that the specific chart date has not been established as the procedure is in the very early design stage or the design is about to begin.. The FAA implementation strategy is as follows:

1. Implement PBN procedures to address location-specific and regional requirements stemming from safety concerns (e.g., alerts), infrastructure constraints (e.g., terrain, runway closure, constructions and crane operations, runway ends not serviced by precision approach systems, etc.), and other needs that must be addressed in the immediate term. The following table lists those procedures in the FY 2010 and FY 2011 charting cycles.

Benefits: Procedures in table 1 include improved safety, airport access, and/or aircraft and environmental efficiencies:

Table 1: Immediate Needs

Airport Identifier	Airport Name	State	Procedure Name	Publication Chart Cycle	Benefits	FAA Service Center Requestor	Industry Requesting Partner
ABQ	Albuquerque International	NM	RNAV (RNP) RWY 26, ORIG	1-2/FY11	Initial Implementation: Runway ends not serviced by precision approach systems	Central	-
BTM	Bert Mooney	MT	RNAV (RNP) RWY 15, ORIG RNAV (RNP) RWY 33, ORIG	5-6/FY10 5-6/FY10	Initial Implementation: Access and safety	Western	Horizon Air
BZN	Gallatin Field	MT	RNAV (RNP) Z RWY 12, ORIG RNAV (RNP) RWY 30, ORIG	3-4/FY10 3-4/FY10	Initial Implementation: Access and safety	Western	Horizon Air
CLT	Charlotte-Douglas International	NC	RNAV (RNP) Z RWY 5, ORIG RNAV (RNP) Z RWY 23, ORIG RNAV (RNP) Z RWY 36L, ORIG RNAV (RNP) Y RWY 36C, ORIG RNAV (RNP) Z RWY 36R, ORIG RNAV (RNP) Z RWY 18C, ORIG RNAV (RNP) Z RWY 18L, ORIG RNAV (RNP) Z RWY 18R, ORIG	2-3/FY10 2-3/FY10 2-3/FY10 2-3/FY10 2-3/FY10 2-3/FY10 2-3/FY10 2-3/FY10	Initial Implementation: Backup (supplement) ILS	Eastern	U.S. Airways
COS	Colorado Springs	CO	RNAV (RNP) RWY 17L, ORIG RNAV (RNP) RWY 17R, ORIG RNAV (RNP) RWY 35L, ORIG RNAV (RNP) RWY 35R, ORIG	5-6/FY10 5-6/FY10 5-6/FY10 5-6/FY10	Initial Implementation: Better minimums and independence from navigational aids (navaids)	Western	-
EWR	Newark International	NJ	RNAV (RNP) Y RWY 29, AMDT 1 RNAV (RNP) Z RWY 29, AMDT 1	4-5/FY10 4-5/FY10	Optimization: Access and safety	Eastern	Continental
GTF	Great Falls International	MT	RNAV (RNP) RWY 16, ORIG RNAV (RNP) RWY 21, ORIG RNAV (RNP) RWY 3, ORIG RNAV (RNP) RWY 34, ORIG	3-4/FY11 3-4/FY11 3-4/FY11 3-4/FY11	Initial Implementation: Better minimums and independence from navaids	Western	Horizon Air
GUC	Gunnison-Crested Butte Regional	CO	RNAV (RNP) RWY 24, ORIG	4-5/FY10	Initial Implementation: Access and safety	Western	Performance-Based Operations Aviation Rulemaking Committee & National Business Aviation Association
HKO	Kona International	HI	RNAV (RNP) RWY 17, ORIG	5-6/FY10	Initial Implementation: Better minimums and independence from navaids	Western	-
IDA	Idaho Falls Regional	ID	RNAV (RNP) Z RWY 2, ORIG RNAV (RNP) Z RWY 20, ORIG	4-5/FY10 4-5/FY10	Initial Implementation: Better minimums and independence from navaids	Western	Horizon Air

Airport Identifier	Airport Name	State	Procedure Name	Publication Chart Cycle	Benefits	FAA Service Center Requestor	Industry Requesting Partner
LWS	Lewiston-Nez Perce County	ID	RNAV (RNP) Z RWY 12, ORIG RNAV (RNP) Z RWY 26, ORIG RNAV (RNP) RWY 30, ORIG RNAV (RNP) Z RWY 8, ORIG	3-4/FY10 3-4/FY10 3-4/FY10 3-4/FY10	Initial Implementation: Access and safety	Western	Horizon Air
MFR	Rogue Valley International	OR	RNAV (RNP) RWY 14, ORIG RNAV (RNP) RWY 32, ORIG	4-5/FY10 4-5/FY10	Initial Implementation: Access and safety	Western	Horizon Air
OAK	Metropolitan Oakland International	CA	RNAV (RNP) Z RWY 11, ORIG RNAV (RNP) Z RWY 27L, ORIG RNAV (RNP) Z RWY 27R, ORIG RNAV (RNP) Z RWY 29, ORIG	4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10	Initial Implementation: Safety concerns regarding Terrain Awareness and Warning System (TAWS) warnings	Western	Southwest Airlines & Jet Blue
OGG	Kahului	HI	RNAV (RNP) RWY 2, ORIG	5-6/FY10	Initial Implementation: Better minimums and independence from nav aids	Western	-
ORF	Norfolk International	VA	RNAV (RNP) Y RWY 5, AMDT 1 RNAV (RNP) Y RWY 23, AMDT 1	5-6/FY11 5-6/FY11	Initial Implementation: Access and safety	Eastern	-
OTH	Southwest Oregon Regional	OR	RNAV (RNP) Z RWY 4, ORIG	3-4/FY10	Initial Implementation: Access and safety	Western	National Business Aviation Association & Horizon Air
PBI	Palm Beach International	FL	RNAV (RNP) Z RWY 10L, ORIG RNAV (RNP) Z RWY 32, ORIG RNAV (RNP) Z RWY 28R, ORIG RNAV (RNP) Z RWY 14, ORIG	2-3/FY10 2-3/FY10 2-3/FY10 2-3/FY10	Initial Implementation: Better minimums and improved access; backup (supplement) ILS	Eastern	NetJets, & Southwest Airlines
PDK	Dekalb-Peachtree	GA	RNAV (RNP) RWY 2R	TBD	Initial Implementation: Access and safety	Eastern	-
SLC	Salt Lake City	UT	RNAV (RNP) RWY 16L, ORIG RNAV (RNP) RWY 16R, ORIG RNAV (RNP) RWY 17, ORIG	TBD TBD TBD	Initial Implementation: Access and safety	Western	-
TEB	Teterboro	NJ	RNAV (RNP) RWY 1, ORIG RNAV (RNP) RWY 24, ORIG	TBD TBD	Initial Implementation: Access and safety	Eastern	-

2. Move toward optimizing existing Initial Implementation PBN procedures in the terminal area with more substantial expected benefits. The following table 2 lists the procedures for the FY 2010 and FY 2011 charting cycles. Based on the FAA benefits study mentioned above, several airports have targeted potential benefits identified that include:

- Number of level offs (inefficient time an aircraft spends in level flight at a defined altitude when on descent to an airport) targeted for reduction or elimination;
- Annual gallons of fuel savings goal;
- Annual hours of flight time savings from increased high speed cruise time; and
- Annual cost savings goal.

Benefits: Procedures in table 2 include reduced fuel and emissions, reduced delay, reduced voice communication, and/or improved airport throughput and capacity. A major goal for all RNAV STARs is the optimization of vertical flight path.

Note: In the past, OPD STARs at Phoenix have saved approximately 18 gallons of fuel a flight, yielding \$2 million in fuel savings a year. In the past, RNAV SIDs have enabled diverging departures at Hartsfield-Jackson Atlanta International Airport (ATL), increasing the departure rate by up to six flights an hour, and reducing delay by 2.5 minutes a flight. The application of RNAV at ATL reduced voice communications by one-third, or approximately 4,400 communications a day.

Table 2: Initial Implementation and Optimized PBN Procedures

Airport Identifier	Airport Name	State	Procedure Name	Publication Chart Cycle	Benefits	FAA Service Center Requestor	Industry Requesting Partner
13M	Socatean Bay	ME	SULOC 1 (RNAV SID) JAVUN 1 (RNAV SID)	5-6/FY10 5-6/FY10	Initial Implementation	Eastern	-
36U	Heber City	UT	COOLI 2 (RNAV SID)	5-6/FY10	Optimization	Western	-
65S	Boundary County	ID	KARPS 1 (RNAV SID)	4-5/FY10	Initial Implementation	Western	-
AAK	Atka	AK	INOTY 1 (RNAV SID) HIMKI 1 (RNAV SID)	3-4/FY10 3-4/FY10	Initial Implementation	Western	-
ABQ	Albuquerque International	NM	TBD1 (RNAV STAR) TBD1 (RNAV STAR) TBD1 (RNAV STAR) TBD1 (RNAV SID) TBD1 (RNAV SID) TBD1 (RNAV SID) TBD1 (RNAV SID) TBD1 (RNAV SID)	TBD TBD TBD TBD TBD TBD TBD TBD	Initial Implementation	Western	-
ADM	Marshall Don Hunter SR	AK	BIBNE 2 (RNAV SID)	3-4/FY10	Optimization	Western	-
AKT	Ketchikan	AK	COBSU 3 (RNAV SID)	2-3/FY10	Optimization	Western	-
AMA	Rick Husband Amarillo	TX	RNAV (RNP) RWY 13, ORIG RNAV (RNP) RWY 22, ORIG RNAV (RNP) RWY 31, ORIG RNAV (RNP) RWY 4, ORIG	4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10	Initial Implementation: More efficient arrivals to DFW and independence from navaids	Central	Southwest Airlines

Airport Identifier	Airport Name	State	Procedure Name	Publication Chart Cycle	Benefits	FAA Service Center Requestor	Industry Requesting Partner
ANC	Ted Stevens Anchorage International	AK	KROTO 1 (RNAV STAR) OTTER 1 (RNAV STAR) PORTJ 1 (RNAV STAR) TYONW 1 (RNAV STAR) NEELL 1 (RNAV STAR) GASTO 3 (RNAV STAR) KELYE 2 (RNAV STAR) MUDIE 2 (RNAV STAR) MCKNZ 1 (RNAV SID) SNDLK 1 (RNAV SID) TERYT 1 (RNAV SID) TLEFT 1 (RNAV SID) WNFRM 1 (RNAV SID)	4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 3-4/FY11 3-4/FY11 3-4/FY11 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10	Initial Implementation & Optimization	Western	-
AOH	Hoonah	AK	ISLAND 2 (RNAV SID)	2-3/FY10	Optimization	Western	-
APA	Centennial	CO	RNAV (RNP) RWY 17R RNAV (RNP) RWY 35L RNAV (RNP) RWY 17L RNAV (RNP) RWY 28 RNAV (RNP) RWY 35R	TBD TBD TBD TBD	Optimization: Noise issues	Western	-
APC	Napa County	CA	OZIEE 1 (RNAV SID)	3-4/FY10	Initial Implementation	Western	-
APG	Petersburg James Johnson	AK	NAYTI 2 (RNAV SID) NEERE 2 (RNAV SID)	4-5/FY11 4-5/FY11	Optimization	Western	Airport Authority
APM	Platinum	AK	TBD 1 (RNAV SID)	5-6/FY10	Initial Implementation	Western	-
ASE	Aspen-Pitkin County	CO	PITKN 2 (RNAV SID) RNAV (RNP) Y RWY 15, ORIG	6/FY10 1-2/FY11	Initial Implementation	Western	-
ATL	Hartsfield-Jackson Atlanta International	GA	CANUK 8 (RNAV STAR) ERLIN 6 (RNAV STAR) FLCON 4 (RNAV STAR) HERKO 3 (RNAV STAR) HONIE 6 (RNAV STAR) PECHY 4 (RNAV STAR) DIRTY 1 (RNAV STAR) NOTRE 1 (RNAV STAR) VIKNN 2 (RNAV STAR) JRAMS 1 (RNAV STAR) UGAAA 3 (RNAV SID) NUGGT 5 (RNAV SID) RMBLN 6 (RNAV SID) THRSR 6 (RNAV SID) NOVSS 4 (RNAV SID) MUNSN 5 (RNAV SID) PNUTT 6 (RNAV SID) JOGOR 4 (RNAV SID) CADIT 6 (RNAV SID) JCKTS 6 (RNAV SID) COKEM 5 (RNAV SID) GEETK 6 (RNAV SID) SUMMT 5 (RNAV SID) BRAVS 6 (RNAV SID) DOOLY 5 (RNAV SID) DAWGS 5 (RNAV SID)	4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 TBD TBD 1-2/FY10 4-5/FY10 6/FY10 6/FY10 6/FY10 6/FY10 6/FY10 6/FY10 6/FY10 6/FY10 6/FY10 6/FY10 6/FY10 6/FY10 6/FY10 6/FY10 6/FY10 6/FY10 6/FY10	Optimization STARs: Target 40 level-offs FS: 3.5 million (M) gallons (gal) TS: 7 thousand (K) Hours (hrs) CS: \$7.3 M	Eastern	Delta Airlines
AUS	Austin-Bergstrom International	TX	WLEEE 1 (RNAV STAR) BEVOH 1 (RNAV SID)	5-6/FY10 5-6/FY10	Initial Implementation STAR: Target 2 level-offs FS: 22K gal TS: 50 hrs CS: \$45K	Central	-

Airport Identifier	Airport Name	State	Procedure Name	Publication Chart Cycle	Benefits	FAA Service Center Requestor	Industry Requesting Partner
BCB	Virginia Tech-Montgomery Executive	VA	BEMAR 1 (RNAV SID)	5-6/FY10	Initial Implementation	Eastern	-
BHM	Birmingham International	AL	CRIMSON 1 (RNAV STAR) FIBER 1 (RNAV STAR) MUTIE 1 (RNAV STAR) WENDO 1 (RNAV STAR) GUMPY 1 (RNAV STAR) ACTAN 1 (RNAV SID) BROOKWOOD 1 (RNAV SID) GADSDEN 1 (RNAV SID) HANDE 1 (RNAV SID) RNAV (RNP) Z RWY 24, ORIG RNAV (RNP) Z RWY 6, ORIG	6/FY11 6/FY11 6/FY11 6/FY11 6/FY11 6/FY11 6/FY11 6/FY11 6/FY11 4-5/FY10 4-5/FY10	Initial Implementation: More efficient arrivals to ATL & independence from nav aids	Eastern	-
BIH	Eastern Sierra Regional	CA	RNAV (RNP) RWY 30, AMDT 1	5-6/FY11	Initial Implementation	Western	-
BOS	Logan International	MA	REVER 1 (RNAV STAR) BRADY 1 (RNAV STAR) TEDDY 1 (RNAV STAR) DREEM 1 (RNAV STAR) PATSS 2 (RNAV SID) LBSTA 2 (RNAV SID) BRUWN 2 (RNAV SID) CELTK 2 (RNAV SID) HYLND 2 (RNAV SID) SSOXS 2 (RNAV SID) RNAV (RNP) Z RWY 4R, ORIG	5-6/FY10 5-6/FY10 5-6/FY10 5-6/FY10 6/FY10 6/FY10 6/FY10 6/FY10 6/FY10 6/FY10 5-6/FY11	Initial Implementation & Optimization STARs: Target 20 level-offs FS: 1M gal TS: 2K hrs CS: \$2.1 M	Eastern	-
BUR	Bob Hope	CA	EASST 1 (RNAV STAR) SUNDIAL 1 (RNAV STAR) RNAV (RNP) RWY 15, ORIG RNAV (RNP) RWY 26, ORIG RNAV (RNP) RWY 33, ORIG RNAV (RNP) Z RWY 8, AMDT 1	5-6/FY10 5-6/FY10 5-6/FY10 5-6/FY10 5-6/FY10 5-6/FY10	Initial Implementation & Optimization STAR: Target 8 level-offs FS: 110K gal TS: 200 hrs CS: \$230K RNP AR: More efficient arrivals to LAX	Western	RNP AR: National Business Aviation Association (NBAA), Horizon Air, Alaska Airlines, & Southwest Airlines
BWI	Baltimore Washington Thurgood Marshall	MD	TERPZ 2 (RNAV SID) WEINR 1 (RNAV SID) SEVRN 1 (RNAV SID) RNAV (RNP) Z RWY 10, AMDT 1 RNAV (RNP) Z RWY 15R, AMDT 1 RNAV (RNP) Z RWY 28, AMDT 1 RNAV (RNP) Z RWY 33L, AMDT 1	4-5/FY10 1-2/FY11 TBD 6/FY10 6/FY10 6/FY10 6/FY10	Optimization RNP AR: Add RF turn to reduce flight time by 1 min and/or length by 3 NM	Eastern	RNP AR: Southwest Airlines
CFT	Greenlee County	AZ	TBD 1 (RNAV SID)	4-5/FY10	Initial Implementation	Western	-
CHS	Charleston AFB	SC	AMYL 1 (RNAV STAR) BAGGY 1 (RNAV STAR) MKZNI 1 (RNAV STAR) OSPRI 1 (RNAV STAR) LGRHD 1 (RNAV SID) MLTRE 1 (RNAV SID) PLFMD 1 (RNAV SID) PLMTO 1 (RNAV SID) SWPFX 1 (RNAV SID)	5-6/FY11 5-6/FY11 5-6/FY11 5-6/FY11 5-6/FY11 5-6/FY11 5-6/FY11 2-3/FY12 5-6/FY11	Initial Implementation	Eastern	-
CLT	Charlotte-Douglas International	NC	BUCKL 6 (RNAV SID) ZAVR 1 (RNAV SID) JACAL 5 (RNAV SID) MERIL 5 (RNAV SID) DEBIE 5 (RNAV SID) LILLS 5 (RNAV SID) ANDYS 6 (RNAV SID)	1-2/FY10 1-2/FY10 1-2/FY10 1-2/FY10 1-2/FY10 1-2/FY10 1-2/FY10	Optimization	Eastern	U.S. Airways

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CMH	Port Columbus International	OH	GAILL 1 (RNAV STAR)	1-2/FY10	Initial Implementation: Target 4 level-offs FS: 54K gal TS: 100 hrs CS: \$112K	Central	-
COS	City of Colorado Springs	CO	OZZZY 1 (RNAV STAR)	6/FY10	Initial Implementation	Western	-
CVG	Cincinnati-Northern Kentucky International	KY	GAVNN 3 (RNAV STAR) BNGLE 2 (RNAV SID) CHCLL 2 (RNAV SID) GIPLE 3 (RNAV SID) HAGOL 2 (RNAV SID) JBNCH 2 (RNAV SID) KENLN 2 (RNAV SID) LOVEY 2 (RNAV SID) ROCKT 4 (RNAV SID) SILKS 2 (RNAV SID)	3-4/FY10 3-4/FY10 3-4/FY10 3-4/FY10 3-4/FY10 3-4/FY10 3-4/FY10 3-4/FY10 3-4/FY10 3-4/FY10	Optimization STARs: Target 4-5 level-offs FS: 100K gal TS: 340 hrs CS: \$200 K	Eastern	-
CXP	Carson City	NV	JIMPA 2 (RNAV SID)	4-5 /FY10	Initial Implementation	Western	-
DCA	Ronald Reagan Washington National	VA	CLIPER 2 (RNAV STAR) RNAV (RNP) Y RWY 1, AMDT 1	1-2/FY11 5-6/FY11	Optimization STARs: Target 4 level-offs FS: 200K gal TS: 450 hrs CS: \$410 K	Eastern	-
DFW	Dallas-Fort Worth International	TX	AKUNA 3 (RNAV SID) BLECO 3 (RNAV SID) DARTZ 3 (RNAV SID) FERRA 3 (RNAV SID) GRABE 3 (RNAV SID) LOWGN 3 (RNAV SID) SLOTT 3 (RNAV SID)	3-4/FY10 3-4/FY10 3-4/FY10 3-4/FY10 3-4/FY10 3-4/FY10 3-4/FY10	Optimization	Central	-
DIJ	Driggs-Reed Memorial	ID	LAMON 3 (RNAV SID)	5-6/FY10	Optimization	Western	Airport Authority
EAT	Pangborn Memorial	WA	RNAV (RNP) RWY 12, ORIG RNAV (RNP) RWY 30, ORIG	4-5/FY10 4-5/FY10	Initial Implementation	Western	National Business Aviation Association
EGE	Eagle County Regional	CO	RNAV (RNP) RWY 25, ORIG	1-2/FY11	Initial Implementation	Western	-
ELI	Elim	AK	ELIM 1 (RNAV SID)	3-4/FY10	Initial Implementation	Western	-
ELP	El Paso International	TX	TBD 1 (RNAV STAR) TBD 1 (RNAV STAR) TBD 1 (RNAV STAR) TBD 1 (RNAV SID) TBD 1 (RNAV SID) TBD 1 (RNAV SID) TBD 1 (RNAV SID)	TBD TBD TBD TBD TBD TBD TBD	Initial Implementation	Central	-
EWR	Newark International	NJ	DYLIN 5 (RNAV STAR) PHLBO 3 (RNAV STAR) PORTT 2 (RNAV SID) PORTT 2 (RNAV SID) TBD 1 (RNAV SID) TBD 1 (RNAV SID) TBD 1 (RNAV SID) PORTT SPLIT 1 (RNAV SID) MEDDO 3 (RNAV SID) MEDDO SPLIT 1 (RNAV SID)	1-2/FY11 1-2/FY11 4-5/FY10 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11	Optimization: Operational efficiency STARs: Target 12 level-offs FS: 850K gal TS: 2000 hrs CS: \$1.8 M	Eastern	-
FFZ	Falcon	AZ	MESA 1 (RNAV SID) SACAT 1 (RNAV SID)	3-4/FY10 3-4/FY10	Initial Implementation	Western	-

Airport Identifier	Airport Name	State	Procedure Name	Publication Chart Cycle	Benefits	FAA Service Center Requestor	Industry Requesting Partner
GEG	Spokane International	WA	RNAV (RNP) RWY 21, ORIG RNAV (RNP) RWY 25, ORIG RNAV (RNP) RWY 3, ORIG RNAV (RNP) RWY 7, ORIG	5-6/FY10 6/FY10 6/FY10 6/FY10	Initial Implementation: More efficient arrivals to SEA & independence from nav aids	Western	Southwest Airlines
GJT	Grand Junction Regional	CO	RNAV (RNP) RWY 11, ORIG	3-4/FY11	Initial Implementation	Western	NetJets
GSP	Greer	SC	UNMAN 1 (RNAV STAR) WHTTL 1 (RNAV STAR)	4-5/FY10 4-5/FY10	Initial Implementation	Eastern	-
HDN	Yampa Valley	CO	RNAV (RNP) Z RWY 10, AMDT 1	3-4/FY10	Optimization	Western	Delta Airlines & National Business Aviation Association
HIO	Portland-Hillsboro	OR	BERNI 1 (RNAV SID) CHISM 1 (RNAV SID)	4-5/FY10 4-5/FY10	Initial Implementation	Western	-
HKO	Kona International	HI	TBD 1 (RNAV STAR)	5-6/FY10	Initial Implementation	Western	-
HND	Henderson Executive	NV	TBD 1 (RNAV STAR) TBD 1 (RNAV STAR) TBD 1 (RNAV STAR) TBD 1 (RNAV SID) TBD 1 (RNAV SID)	5-6/FY10 5-6/FY10 5-6/FY10 5-6/FY10 5-6/FY10	Optimization: LAS TRACON	Western	-
HNL	Honolulu International	HI	REEEF 1 (RNAV STAR) KAENA 1 (RNAV STAR) KLANI 1 (RNAV STAR) HAABR 1 (RNAV STAR) FRTZI 1 (RNAV STAR) RNAV (RNP) RWY 26L, AMDT 1 RNAV (RNP) Z RWY 4R, AMDT 1 RNAV (RNP) Z RWY 8L, AMDT 1	3-4/FY10 3-4/FY10 3-4/FY10 6/FY10 5-6/FY10 5-6/FY10 5-6/FY10 5-6/FY10	Initial Implementation & Optimization	Western	RNP AR: Hawaiian Airlines, Delta Airlines, & Continental Airlines
HNM	Hana	HI	LINDBERG 2 (RNAV SID)	2-3/FY11	Optimization	Western	-
HOU	Houston Hobby	TX	STROS 1 (RNAV STAR)	4-5/FY10	Initial Implementation: Target 3-4 level-offs FS: 90K gal TS: 200 hrs CS: \$180K	Central	-
HPN	Westchester County	NY	RNAV (RNP) Z RWY 16, ORIG RNAV (RNP) Z RWY 34, ORIG	4-5/FY10 4-5/FY10	Initial Implementation	Eastern	-
IAD	Washington Dulles International	DC	HYPER 2 (RNAV STAR)	1-2/FY11	Optimization Target 5 level-offs FS: 240K gal TS: 580 hrs CS: \$490 K	Eastern	-

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IAH	George Bush Intercontinental	TX	AGGEE 2 (RNAV STAR) DYNMO 1 (RNAV STAR) HAMMU 1 (RNAV STAR) KABOY 2 (RNAV STAR) BAZBL 1 (RNAV STAR) ROKIT 2 (RNAV STAR) COACH 1 (RNAV STAR) TXMEX 2 (RNAV STAR) BOWFN 1 (RNAV SID) WALIN 1 (RNAV SID) GUSTI 2 (RNAV SID) SABINE PASS 2 (RNAV SID) RNAV (RNP) RWY 9 RNAV (RNP) RWY 33 RNAV (RNP) RWY 26L RNAV (RNP) RWY 26R RNAV (RNP) RWY 8R RNAV (RNP) RWY 8L RNAV (RNP) RWY 27 RNAV (RNP) RWY 15R	4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 TBD TBD TBD TBD TBD TBD TBD TBD	Initial Implementation & Optimization STARs: Target 16-24 level-offs FS: 1.4M gal TS: 4K hrs CS: \$2.9M	Central	-
IWA	Phoenix-Mesa Gateway	AZ	HUUTY 1 (RNAV STAR)	4-5/FY10	Initial Implementation	Western	-
JAX	Jacksonville International	FL	DUNTE 1 (RNAV STAR) MULET 1 (RNAV STAR) LUNNI 1 (RNAV STAR) OHDEA 1 (RNAV STAR) HOTAR 1 (RNAV STAR) TEBOW 1 (RNAV STAR) KRISO 1 (RNAV SID) JETIN 1 (RNAV SID) TRBRO 1 (RNAV SID) WYTOK 1 (RNAV SID)	1-2/FY12 1-2/FY12 1-2/FY12 1-2/FY12 1-2/FY12 1-2/FY12 1-2/FY12 1-2/FY12 1-2/FY12 1-2/FY12	Initial Implementation	Eastern	-
JFK	John F. Kennedy International	NY	PARCH 1 (RNAV STAR) SCUBI 1 (RNAV STAR) WRAPP 1 (RNAV SID) SKORR 2 (RNAV SID) SKORR 3 (RNAV SID) SCUBBY 1 (RNAV SID) SID RWY 31 (RNAV SID) TBD 1 (RNAV SID) TBD 1 (RNAV SID) RNAV (RNP) Z RWY 31L, AMDT 1	2-3/FY10 1-2/FY11 1-2/FY11 4-5/FY10 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 4-5/FY10	Initial Implementation & Optimization STARs: Target 6-8 level-offs FS: 690K gal TS: 1K hrs CS: \$1.4M	Eastern	-
JSJ	Luis Munoz Marin International	PR	GLADA 2 (RNAV STAR) CHAKA 2 (RNAV STAR) TROCO 2 (RNAV STAR) BEANO 2 (RNAV STAR) JOSHE 2 (RNAV STAR) SAALR 2 (RNAV STAR)	2-3/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10	Optimization	Eastern	-
JVQ	Antonio Rodriguez	PR	VEDAS 3 (RNAV SID)	2-3/FY10	Optimization	Eastern	-
LAS	McCarran International	NV	BOACH 3 (RNAV SID) COWBY 3 (RNAV SID) SHEAD 6 (RNAV SID) TRALR 3 (RNAV SID) TBD (RNAV SID) TBD (RNAV SID)	4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 5-6/FY11 5-6/FY11	Optimization	Western	-

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LGA	LaGuardia	NY	BASYE 1 (RNAV STAR) TBD (RNAV STAR) TBD (RNAV STAR) NTHNS 1 (RNAV SID) TNNIS 1 (RNAV SID) TREEO 1 (RNAV SID) GLDMN 1 (RNAV SID) STNBZ 1 (RNAV SID) NTHNS 2 (RNAV SID) TNNIS 2 (RNAV SID) TREEO 2 (RNAV SID) GLDMN 2 (RNAV SID) STNBZ 2 (RNAV SID) TBD 1 (RNAV SID) TBD 1 (RNAV SID) TBD 1 (RNAV SID)	3-4/FY10 4-5/FY10 4-5/FY10 3-4/FY10 3-4/FY10 3-4/FY10 3-4/FY10 3-4/FY10 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11	Initial Implementation STARs: Target 15-18 level-offs FS: 850L gal TS: 3 K hrs CS: \$1.7M	Eastern	-
LGB	Long Beach Daugherty Field	CA	RNAV (RNP) Z RWY 12, AMDT 1 RNAV (RNP) Z RWY 30, AMDT 1	1-2/FY11 1-2/FY11	Optimization	Western	-
LLR	Little River	CA	LITTLE RIVER 1 (RNAV SID)	3-4/FY10	Initial Implementation	Western	-
MCO	Orlando International	FL	COSTR 3 (RNAV STAR)	1-2/FY11	Optimization: Target 3-4 level-offs FS: 300K gal TS: 300 hrs CS: \$650K	Eastern	-
MDW	Chicago Midway	IL	RNAV (RNP) Y RWY 22L, ORIG	TBD	Optimization: Environmental issues	Central	-
MEM	Memphis International	TN	BEERT 5 (RNAV STAR) LTOWN 5 (RNAV STAR)	1-2/FY12 0-1/FY11	Optimization: Target 8 level-offs FS: 400 K gal TS: 800 hrs CS: \$900K	Eastern	-
MHR	Sacramento-Mather	CA	TBD (RNAV STAR)	5-6/FY10	Initial Implementation	Western	United Postal Service
MHT	Manchester	NH	POPPP 1 (RNAV STAR)	5-6/FY10	Initial Implementation: Target 2 level-offs FS: 22K gal TS: 50 hrs CS: \$45K	Eastern	-
MIA	Miami International	FL	CURSO 2 (RNAV STAR) FLIPR 2 (RNAV STAR) HILEY 3 (RNAV STAR) BSTER 1 (RNAV SID) DIAZZ 1 (RNAV SID) JONZI 1 (RNAV SID) KADAN 1 (RNAV SID)	3-4/FY10 2-3/FY10 0-1/FY12 0-1/FY12 0-1/FY12 0-1/FY12 0-1/FY12	Optimization: Target 9 level-offs FS: 600 K gal TS: 900 hrs CS: \$1.3M	Eastern	-
MMU	Morristown	NJ	TBD (RNAV SID)	5-6/FY10	Initial Implementation	Eastern	-
MSP	Minneapolis	MN	LEINY 3 (RNAV SID) SMERF 3 (RNAV SID)	2-3/FY10 2-3/FY10	Optimization	Central	-
OGG	Kahului	HI	TBD 1 (RNAV STAR)	5-6/FY10	Initial Implementation	Western	-
ORD	Chicago O'Hare International	IL	WYNDE 1 (RNAV STAR) BULLZ 1 (RNAV STAR) BENKY 1 (RNAV STAR) WYNDE 2 (RNAV STAR)	2-3/FY10 2-3/FY10 2-3/FY10 3-4/FY10	Initial Implementation: Target 20 level-offs FS: 2.4M gal TS: 5.4 K hrs CS: \$5M	Central	-

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PBI	Palm Beach International	FL	FRWAY 3 (RNAV STAR) WLACE 2 (RNAV STAR) WLACE 4 (RNAV STAR) FRWAY 4 (RNAV STAR)	12/17/2009 12/17/2009 1-2/FY11 5-6/FY11	Initial Implementation & Optimization STARs: Target 6 level-offs FS: 120K gal TS: 300 hrs CS: 240K	Eastern	-
PHL	Philadelphia International	PA	GUNNI 2 (RNAV STAR) JIMJE 2 (RNAV STAR) SPUDS 2 (RNAV STAR) GRDEN 1 (RNAV SID) MIFLN 1 (RNAV SID) STADM 1 (RNAV SID) TBRIG 1 (RNAV SID) RNAV (RNP) Z RWY 27L, ORIG RNAV (RNP) Z RWY 27R, ORIG	4-5/FY10 4-5/FY10 4-5/FY10 1-2/FY10 1-2/FY10 1-2/FY10 1-2/FY10 TBD TBD	Initial Implementation & Optimization STARs: Target 15-18 level-offs FS: 1.2M gal TS: 3K hrs CS: \$2.6M	Eastern	-
PHX	Phoenix Sky Harbor International	AZ	FORPE 1 (RNAV SID) BUKEE 1 (RNAV SID) TBD 1 (RNAV SID) TBD 1 (RNAV SID) GBEND 1 (RNAV SID) CHOPR 1 (RNAV SID) FANON 1 (RNAV SID)	4-5/FY10 6/FY10 6/FY10 6/FY10 6/FY10 5-6/FY10 6/FY10	Initial Implementation: Operational efficiency	Western	-
PIE	St. Petersburg-Clearwater International	FL	RNAV (RNP) Z RWY 17L, ORIG RNAV (RNP) Z RWY 22, ORIG	1-2/FY11 1-2/FY11	Initial Implementation	Eastern	-
PIT	Pittsburgh International	PA	HAYNZ 2 (RNAV STAR) RNAV (RNP) Z RWY 32, AMDT 1	4-5/FY10 5-6/FY10	Initial Implementation & Optimization STARs: Target 3 level-offs FS: 65K gal TS: 150 hrs CS: \$130K RNP AR: Add RF turn for reduced flight time and/or length	Eastern	RNP AR: Southwest Airlines
PWM	Portland	ME	CWALL 1 (RNAV SID)	5-6/FY10	Initial Implementation	Eastern	-
PWT	Bremerton National	WA	RNAV (RNP) RWY 19, ORIG	6/FY10	Initial Implementation	Western	-
RDU	Raleigh-Durham International	NC	FRAZI 1(RNAV STAR) MEYER 1 (RNAV STAR) ZODAS 1(RNAV STAR) RASKL 1 (RNAV STAR) BEXGO 1 (RNAV SID) BULZZ 1 (RNAV SID) HOOKZ 1 (RNAV SID) LWOOD 1(RNAV SID) OXFRD 1 (RNAV SID) WLFFF 1 (RNAV SID) HURIC 1 (RNAV SID) RNAV (RNP) Z RWY 23L, AMDT 1 RNAV (RNP) Z RWY 23R, AMDT 1 RNAV (RNP) Z RWY 5L, AMDT 1 RNAV (RNP) Z RWY 5R, AMDT 1	4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 4-5/FY10 5-6/FY10 5-6/FY10 5-6/FY10 5-6/FY10	Initial Implementation STARs: Target 16-20 level-offs FS: 500K gal TS: 940 hrs CS: \$1.0M RNP AR: Add RF turn to reduce flight time by 1 min and length by 3 NM	Eastern	-

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RIL	Garfield County Regional	CO	EDUKY 3 (RNAV SID) SQUAT 3 (RNAV SID) UYRIG 2 (RNAV SID) RNAV (RNP) Y RWY 26, AMDT 1 RNAV (RNP) Z RWY 26, AMDT 1 RNAV (RNP) Z RWY 8, AMDT 1	6/FY10 6/FY10 6/FY10 6/FY10 6/FY10 6/FY10	Optimization	Western	-
RNO	Reno-Tahoe International	NV	DOBNE 1 (RNAV STAR) KENNO 1 (RNAV STAR) MYBAD 1 (RNAV STAR) HARTT 1 (RNAV STAR) PVINE 1 (RNAV SID) ZEFFR 4 (RNAV SID) SPLTM 1 (RNAV SID)	3-4/FY10 4-5/FY10 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11	Initial Implementation & Optimization STARs: Target 8-12 level-offs FS: 90K gal TS: 170 hrs CS: \$180K	Western	-
RSW	Southwest Florida International	FL	CSHEL 4 (RNAV SID)	1-2/FY10	Optimization	Eastern	-
SAN	San Diego International	CA	BAYVU 1 (RNAV STAR) POGGI 3 (RNAV SID) RNAV (RNP) Z RWY 9, ORIG	3-4/FY10 1-2/FY11 TBD	Initial Implementation & Optimization STARs: Target 2 level-offs FS: 90 K gal TS: 90 hrs CS: \$190K	Western	-
SAT	San Antonio International	TX	RODIO 1 (RNAV STAR) HUBEE 1 (RNAV SID) ALISS 1 (RNAV SID) MILET 1 (RNAV SID)	5-6/FY10 4-5/FY10 5-6/FY10 5-6/FY10	Initial Implementation STAR: Target 2-3 level-offs FS: 25K gal TS: 80 hrs CS: \$50K	Central	-
SAV	Savannah Hilton Head International	GA	DUNNK 1 (RNAV STAR) PANDY 1 (RNAV STAR) CANTR 1 (RNAV SID) FLYNT 1 (RNAV SID) RESLR 1 (RNAV SID) TRASV 1 (RNAV SID)	6/FY11 6/FY11 6/FY11 6/FY11 6/FY11 6/FY11	Initial Implementation	Eastern	-
SEA	Seattle-Tacoma International	WA	BANGR 7 (RNAV SID) HAROB 4 (RNAV SID) KMORE 3 (RNAV SID) KTSAP 4 (RNAV SID)	5-6/FY10 5-6/FY10 5-6/FY10 5-6/FY10	Optimization	Western	-
SDF	Louisville International	KY	DAMEN 1 (RNAV STAR) EMAUS 1 (RNAV STAR) FRIZN 1 (RNAV STAR) MAUDD 1 (RNAV STAR) NERVE 1 (RNAV STAR) SACKO 1 (RNAV STAR) TUPAY 1 (RNAV STAR) APALO 1 (RNAV SID) FEDRA 1 (RNAV SID) MYSTIC 1 (RNAV SID) STREP 1 (RNAV SID)	6/FY11 6/FY11 6/FY11 6/FY11 6/FY11 6/FY11 6/FY11 6/FY11 6/FY11 6/FY11 6/FY11	Initial Implementation	Eastern	-

Airport Identifier	Airport Name	State	Procedure Name	Publication Chart Cycle	Benefits	FAA Service Center Requestor	Industry Requesting Partner
SJC	Norman Y. Mineta	CA	RNAV (RNP) Z RWY 12R, AMDT 1 RNAV (RNP) Z RWY 30L, AMDT 1 RNAV (RNP) RWY 12L, ORIG RNAV (RNP) RWY 30R, ORIG	TBD TBD TBD TBD	Initial Implementation & Optimization More efficient arrivals to SFO and independence from nav aids	Western	NetJets, & Southwest Airlines
SMF	Sacramento International	CA	RNAV (RNP) RWY 16L, ORIG RNAV (RNP) RWY 16R, ORIG RNAV (RNP) RWY 34L, ORIG	5-6/FY10 5-6/FY10 5-6/FY10	Initial Implementation: More efficient arrivals to SFO and independence from nav aids	Western	Southwest Airlines
SNA	John Wayne-Orange County	CA	DUUKE 2 (RNAV SID) RNAV (RNP) RWY 19R, ORIG	3-4/FY10 6/FY10	Initial Implementation: More efficient arrivals to LAX and independence from nav aids	Western	NetJets
SRQ	Sarasota-Bradenton International	FL	TRAPR 1 (RNAV STAR) TEEGN 1 (RNAV STAR) SRKUS 1 (RNAV SID)	1-2/FY11 1-2/FY11 1-2/FY11	Initial Implementation STARs: Target 2 level-offs FS: 16K gal TS: 75 hrs CS: \$33K	Eastern	-
STL	St. Louis International	MO	BUSHH 1 (RNAV STAR) MARAS 1 (RNAV STAR) AARCH 1 (RNAV STAR) SAWYR 1 (RNAV STAR) LOUIS 1 (RNAV SID) KLARK 1 (RNAV SID) BERRA 1 (RNAV SID) JEFFERSON 1 (RNAV SID)	TBD TBD TBD TBD TBD TBD TBD TBD	Initial Implementation STARs: Target 4 level-offs FS: 300K gal TS: 650 hrs CS: \$650 K	Eastern	-
TEB	Teterboro	NJ	JAIKE 3 (RNAV STAR) RUUDY 3 (RNAV SID)	5-6/FY10 1-2/FY11	Initial Implementation STAR: Target 4-5 level-offs FS: 12K gal TS: 250 hrs CS: \$25K	Eastern	-

Airport Identifier	Airport Name	State	Procedure Name	Publication Chart Cycle	Benefits	FAA Service Center Requestor	Industry Requesting Partner
TPA	Tampa International	FL	BLOND 2 (RNAV STAR) DADES 2 (RNAV STAR) DEAKK 2 (RNAV STAR) FOXXX 2 (RNAV STAR) BLOND 3 (RNAV STAR) DADES 3 (RNAV STAR) DEAKK 3 (RNAV STAR) FOXXX 3 (RNAV STAR) BAYPO 2 (RNAV SID) CROWD 2(RNAV SID) ENDED 2 (RNAV SID) GANDY 2 (RNAV SID) SYKES 2 (RNAV SID) BAYPO 3 (RNAV SID) CROWD 3 (RNAV SID) ENDED 3 (RNAV SID) GANDY 3 (RNAV SID) SYKES 3 (RNAV SID) RNAV (RNP) Y RWY 18L, AMDT 1 RNAV (RNP) Z RWY 18R, ORIG RNAV (RNP) Z RWY 36L, ORIG RNAV (RNP) Z RWY 36R, ORIG	2-3/FY10 2-3/FY10 2-3/FY10 2-3/FY10 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 2-3/FY10 2-3/FY10 2-3/FY10 2-3/FY10 2-3/FY10 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11	Initial Implementation & Optimization STARs: Target 12-16 level-offs FS: 580 K gal TS: 640 hrs CS: \$1.2M RNP AR: Add RF turn to reduce flight time by 1 min and length by 3 NM	Eastern	RNP AR: Southwest Airlines
TUS	Tucson International	AZ	BURRO 3 (RNAV SID) WLDKT 2 (RNAV SID) RNAV (RNP) Y RWY 11L, AMDT 1 RNAV (RNP) Y RWY 29R, AMDT 1	6/FY10 6/FY10 5-6/FY11 5-6/FY11	Optimization RNP AR: Amendments for shorter transitions	Western	RNP AR: Southwest Airlines
U02	McCarley Field	ID	IDAHO FALLS 2 (RNAV SID) POCATELLO 2 (RNAV SID)	5-6/FY10 5-6/FY10	Optimization	Western	-
VGT	North Las Vegas	NV	TBD 1 (RNAV STAR) TBD 1 (RNAV SID)	6/FY11 6/FY11	Optimization: LAS TRACON	Western -	
VNY	Van Nuys	CA	ENSIN 1 (RNAV STAR)	5-6/FY10	Initial Implementation: Target 2 level-offs FS: 2K gal TS: 75 hrs CS: \$4K	Western	-

3. The FAA is advancing a new initiative and concept for PBN procedures referred to as “Integration of Procedures” as part of a more comprehensive airspace and procedures redesign initiative.

These sites and procedures involve a more complex set of analysis and procedure design processes. Design and implementation typically involve requirements for environmental assessments, more complex coordination between air traffic control facilities for en route procedures (i.e., Q-routes and T-routes) and service areas, and rulemaking activities, therefore, requiring longer lead times for implementation.

Benefits: Procedures in Table 3 are focused on the integration of procedures and the addition of more en route capacity. This can include: reduced fuel and emissions, optimization for arrival and departures, de-coupling of adjacent airport traffic flows, reduced delays, increased terminal ingress and egress, increased efficiencies between city-pairs or metroplex areas, and/or improved airport and en route throughput and capacity.

Table 3: Comprehensive Integrated Procedure Design – Significant Benefits

Airport Identifier	Airport Name	State	Procedure Name	Publication Chart Cycle	Benefits	FAA Service Center Requestor	Industry Requesting Partner
T-route		AK	T-228 (Kipnuk V/DME to EHM NDB)	4-5/FY10	Initial Implementation	Central	-
T-route		AK	T-271 (Cold Bay V/TAC to Amott)	5-6/FY10	Initial Implementation	Central	-
T-route		AK	T-228 (EHM NDB to Rocas)	3-4/FY10	Initial Implementation	Central	-
DEN	Denver International	CO	TBD 1 (RNAV STAR) TBD 1 (RNAV STAR) EEONS 1 (RNAV SID) EMMYS 1 (RNAV SID) EXTAN 1 (RNAV SID) EPKEE 1 (RNAV SID)	1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11 1-2/FY11	Integration of Procedures STAR: Target 6-8 level-offs FS: 832K gal TS: 5,400 hrs CS: \$1.72M	Western	-
Q-route		FL	Q-108 (Gaday to Hkuna)	1-2/FY10	Optimization	Eastern	-
Q-route		NV	Q-15 (Chily AZ to Lomia NV)	4-5/FY10	Optimization	Western	-
T-route		NY	T-253 (TBD)	TBD	Initial Implementation	Eastern	-
T-route		NY	T-255 (TBD)	TBD	Initial Implementation	Eastern	-
T-route		TX	T-284 (Scholes V/TAC to Wemar)	4-5/FY10	Initial Implementation	Central	-
Q-route		TX	Q-37 (Pueblo V/TAC to FST)	1-2/FY11	Optimization	Central	-